

REMARKS

INTRODUCTION

In accordance with the foregoing, the title, the specification, and claims 34-39, and 41 have been amended, claims 43 and 44 have been added, and claims 2-33, 40, and 42 have been cancelled. The amendment to claims 34-39, and 41, as well as added claims 43 and 44 find support throughout the specification and in the original claims. Thus, no new matter is being presented.

Claims 1, 34-39, 41, 43, and 44 are therefore pending and under consideration.

AMENDMENTS TO CLAIMS 1, 34, 37 and 38

Applicants note that the amendments to these claims were made with the intention of correcting informal issues in the claim language and not for reasons related to patentability.

OBJECTIONS TO THE SPECIFICATION

The title and the specification were objected to. Accordingly, both the title and the specification have been amended taking the Examiner's comments into consideration.

REJECTION UNDER 35 USC 112, SECOND PARAGRAPH

Claim 41 was rejected under 35 USC 112(2) as being indefinite. However, applicant respectfully asserts that the amendment to claim 41 overcomes this rejection.

REJECTIONS UNDER 102(e)

Claims 1, 34-39 and 41 were rejected under 35 USC 102(e) as being anticipated by Laor (U.S. Patent No. 6,466,711B1, hereinafter referred to as "Laor"). The applicants, however, respectfully traverse these rejections.

Laor discusses an optical switch device including a first array 20 of reflectors 22, each associated with a separate optical fiber input, and a second array 30 of reflectors 32, each associated with a separate optical fiber output. As shown in at least FIGS. 1, 2, and 3 of Laor, the Laor device results in at least one optical path which travels from an optical input to a reflector on at least one array to an optical output.

The Examiner asserts that Figure 4 of Laor shows an optical switch 10 having a plurality of switch cells with a N (4) inputs and M (4) outputs, a substrate 16 of size larger than the total switch size, first and second mirrors 22, 32 parallel to each other and perpendicular to the substrate, an optical unit provided a plurality of paths inclined to the mirrors for n inputs and m outputs and each cell having a movable mirror 74.

Particularly, the Examiner asserts that each cell includes a movable mirror 74. However, reference numeral "74" shown in Figure 4 of Laor is a lens. According to Laor, fiber beam forming units 70 are comprised of an optical fiber end 72 and a lens 74 spaced apart from and coaxial with the optical fiber end 72, and each lens 74 focuses an optical signal emitted from the fiber end 72 into a beam 80. *See Laor, in column 5, at lines 47-50.*

Regarding the rejection of claim 1, in contrast to the disclosure of Laor, claim 1 recites an optical switch having a plurality of switch cells. The optical switch comprises "first and second mirrors parallel to each other and perpendicular to a principal surface of the substrate," and an optical unit providing a plurality of input and output optical paths. The plurality of optical input paths are inclined relative to the first and second mirrors, and the plurality of output optical paths are also inclined relative to said first and second mirrors. Each of the switch cells comprises a "switch mirror provided movably relative to said substrate."

Since the reference numeral "74" of Laor, as noted above, refers to a lens 74, applicants respectfully assert that the lens 74 does not anticipate a movable mirror, as suggested in the Office Action, and certainly does not anticipate the claimed "switch mirror provided movably relative to said substrate."

Further, Laor discusses that reflectors 22 and 32 are rotated in order to switch optical signals. Thus, the applicants assume that the Examiner considers the reflectors 22 and 32 to correspond to the claimed switch cells. In response, applicants respectfully assert that, Laor does not additionally disclose features, which correspond to the claimed "first and second mirrors parallel to each other and perpendicular to a principal surface of said substrate."

Indeed, even if the Examiner were to suggest that the reflectors 22 and 32 correspond to the claimed "first and second mirrors parallel to each other and perpendicular to a principal surface of said substrate," that suggestion would be improper since at least FIGS. 1-6, and 8, in Laor, show that the reflectors 22 and 32 are not "perpendicular to a principal surface of [a] substrate." *See Laor, FIGS. 1-6, and 8.* Rather, FIGS. 1-6, and 8 show that the reflectors 22 and 32 are usually coplanar with their associated arrays 20 and 30, in that they lie flat on the arrays 20 and 30. Alternately, when the reflectors are raised from the arrays 20 and 30, as in

FIGS. 4, 6, and 8, the reflectors 22 and 32 are positioned at angles which are substantially less than 90 degrees. *See Laor, FIGS. 4, 6, and 8, noting the angle of reflection via the reflectors being less than 90 degrees.*

Since nothing in Laor discloses, teaches or suggests the claimed "switch mirror provided movably relative to said substrate," or the claimed "first and second mirrors parallel to each other and perpendicular to a principal surface of said substrate," it is believed that claim 1 defines over the applied reference and should be allowed on that basis.

Regarding the rejection of claims 34-39, and 41 applicant notes that each of these claims now recites both a movable optical reflecting member, which correspond to the "switch mirror provided movably relative to said substrate," of claim 1, and reflecting means, which correspond to "first and second mirrors parallel to each other and perpendicular to a principal surface of said substrate."

Thus, applicants respectfully assert that the deficiencies of the reference to Laor with respect to claim 1 are also present with respect to claims 34-39, and 41. Therefore, claims 34-39, and 41 are believed to define over the reference and are believed to be allowable for at least the reasons set forth above with respect to the allowability of claim 1.

NEWLY ADDED CLAIMS

Newly added claims 43 and 44 include a plurality of optical path switches, between the optical input ports and the optical output ports, each including a movable optical reflecting member, and a pair of mirrors on opposite sides of the movable optical reflecting member. Further, claim 44 includes subject matter originally claimed in claim 7 and should therefore be considered as part of the presently claimed invention. Although this claim was restricted, the subject matter of claim 7 reads on FIGS. 13B and 14B of the specification. This subject matter is directed to the fact that the optical path switches connected to the optical inputs ports and the optical output ports are alternately inverted in logic.

Since claim 43 includes recitations of a plurality of optical path switches, between the optical input ports and the optical output ports, each including a movable optical reflecting member, and a pair of mirrors on opposite sides of the movable optical reflecting member, applicant respectfully asserts that this claim is allowable for at least the reasons set forth above with respect to claim 1.

Since claim 44 includes recitations of a plurality of optical path switches, between the

optical input ports and the optical output ports, each including a movable optical reflecting member, and a pair of mirrors on opposite sides of the movable optical reflecting member, as well as the additional recitations of the optical path switches connected to the optical inputs ports and the optical output ports being alternately inverted in logic, applicant respectfully asserts that this claim is allowable for at least the reasons set forth above with respect to claim 1.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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